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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/312,479 05/17/99 HENNICK

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MM21/0117

EXAMINER

LUU, T

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 01/17/01

Please find below and/or attached an Office communication concerning this application r
proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Applicati n N .

09/312,479

Applicant(s)

HENNICK ET AL.

Examiner

Thanh X Luu

Art Unit

2878

-- The MAILING DATE of this c mmunicati n appears on the c ver she t with the c rrespondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.5.

- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 24, 25 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2, "said optical subassemblies" and "said image sensor subassemblies" lack proper antecedent basis. There appears to be only one subassembly of each type.

Regarding claim 24, "said optical assembly" and "said image sensor assembly" lack proper antecedent basis.

Regarding claim 25, "said image sensor assembly" and "said image sensor" lack proper antecedent basis.

Regarding claim 37, "said image sensor" lacks proper antecedent basis.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claims 1, 2, 4, 7, 12, 13, 15, 18, 23, 24, 26-28, 31-33, 35, 37, 38 and 41-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Kropp (U.S. Patent 5,902,997).

Regarding claim 1, Kropp discloses (see Figure 4) a method for mounting an optical subassembly (44, 45) of an optical reading device to an image sensor subassembly (40) of an optical reading device, the method comprising the steps of: moving the optical and image sensor subassemblies in proximity with one another; and soldering the optical and image sensor subassemblies together with a solder material (see column 5, lines 13-17 and lines 46-52).

Regarding claim 13, Kropp discloses (see Figure 4) a method for mounting an optical subassembly to an image sensor subassembly, the method comprising the steps of: forming at least one solderable surface on at least one of the optical and image sensor subassemblies (see column 5, lines 14-16); moving the optical subassembly (44, 45) in proximity with the image sensor subassembly (40) to define an interface delimited by at least one solderable surface of the optical subassembly or the image sensor subassembly; and soldering the optical subassembly and the image sensor subassembly together at the interface (see column 5, lines 13-16 and lines 45-53).

Regarding claim 26, Kropp discloses (see Figures 3 and 4) an image sensor subassembly comprising: a substantially rigid member (40); an image sensor chip (42) disposed on the substantially rigid member; and a solderable surface (52) formed on the substantially rigid member (see also column 5, lines 14-16).

Regarding claim 32, Kropp discloses (see Figures 3 and 4) an optical subassembly comprising: a substantially rigid member (44); an optical element (45) disposed on the substantially rigid member; and a solderable surface (40) formed on the substantially rigid member (see also column 5, lines 14-16 and lines 45-53).

Regarding claim 38, Kropp discloses (see Figures 3 and 4) an optical reading device comprising: an optical and image sensor assembly including an image sensor subassembly (40, 42) including an image sensor (42) disposed on a substantially rigid member (40), an optical subassembly (44, 45) engaged with the image sensor subassembly, the optical subassembly including an optical element (45) disposed on a substantially rigid member (44), at least one solderable surface (40, 52) formed on either of the image sensor or optical subassemblies defining at least one solder receiving interface between the image sensor subassembly and the optical subassembly (see also column 5, lines 14-16 and lines 45-53), a solder material for bonding the subassemblies disposed at the at least one solder receiving interface; and inherently being disposed in a housing.

Regarding claim 2, Kropp discloses (see column 5, lines 14-16) forming a solderable surface (40, 52) on at least one of the optical or image sensor subassemblies.

Regarding claims 4 and 15, Kropp discloses (see column 5, lines 47-50) plating (metallizing) a solderable material (metal) onto a non-solderable material (40).

Regarding claims 7, 18, 27, 33 and 41, Kropp discloses (see Figure 4) making the solderable surface (40 or 52) in an irregular configuration having an increased surface area per unit three dimensional space relative to that of a smooth surface.

Regarding claims 28 and 42, Kropp disclose (see Figure 4) the solderable surface is made in the configuration of a hole (52).

Regarding claims 12 and 23, Kropp discloses (see Figure 4) forming a solderable pin (46) on one of the subassemblies and making a hole (48) for receiving the pin on the remaining of the subassemblies.

Regarding claim 24, the optical elements of Kropp are inherently aligned with imaging elements of the image sensor subassembly (see Figure 3).

Regarding claims 31 and 37, Kropp discloses (see Figure 3) the at least one solderable surfaces include four solderable surfaces (40a-d, 52a-d) formed about a periphery of the image sensor or the optical element.

Regarding claims 35 and 43, Kropp discloses (see Figure 4) the solderable surface is in the configuration of a pin (40).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Application/Control Number: 09/312,479
Art Unit: 2878

6. Claims 3, 5, 6, 8-11, 14, 16, 17, 19-21, 25, 29, 30, 34, 36, 39, 40 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kropp.

Regarding claims 3, 5 and 16, Kropp does not disclose overmolding non-solderable material onto solderable material or insert molding solderable material in non-solderable material. However, the manner in which solderable material is disposed onto a non-solderable material is well known and is a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to overmold or insert mold in the method of Kropp in order to obtain a solderable surface.

Regarding claims 6 and 17, Kropp discloses (see Figure 4) making a frame (44) for the optical subassembly. Kropp does not disclose the frame comprising essentially solderable material, but the protrusions (40) are solderable material. However, the percentage of solderable material that the frame comprises is a matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a frame of solderable material in order to obtain a desired result.

Regarding claims 8, 9, 19, 20, 29, 30, 34, 36, 39 and 44, Kropp discloses (see Figure 4) a pin (40) and hole (52) type configuration. The specific shape of the pin, as a thread screw is a simple matter of design choice. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to thread the pin in order to provide a tighter and stronger bond. Further it is a matter of design choice which surface is the pin and which is the hole.

Regarding claim 11, the pin and hole of Kropp fits snugly. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to make the pin smaller than the hole in order to allow for adjustments and make the device more adjustable.

Regarding claim 25, Kropp does not disclose testing the alignment of the image sensor during soldering. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to check the alignment by testing the image sensor on a test target in order to confirm the correct alignment of the parts and increase the accuracy and precision of the device.

Regarding claim 39 and 40, Kropp disclose the device as an optoelectronic device. Optoelectronic devices are widely used in the art in document readers and hand held readers. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the soldering configuration in such devices in order to more compactly dispose the optoelectronic configuration within such devices.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham, can be reached on (703) 308-4090. The fax phone

Application/Control Number: 09/312,479

Page 8

Art Unit: 2878

number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl

January 3, 2001



Que T. Le
Primary Examiner